

AMENDMENTS TO THE CLAIMS

1. (Original) A modular photocatalytic air purifier, the photocatalytic purifier comprising:
- a modular enclosure having a retractable alignment mechanism, the retractable alignment mechanism being configured to move between an in-use position and a retracted position;
  - a plurality of support structures disposed within the modular enclosure, each of the plurality of support structures having a catalytic layer disposed thereon; and
  - at least one UV lamp interposed between the plurality of support structures.
2. (Original) The photocatalytic air purifier of claim 1, wherein the catalytic layer is comprised of titanium dioxide.
3. (Original) The photocatalytic air purifier of claim 1, wherein the plurality of support structures are comprised of a ceramic fiber substrate.
4. (Original) The photocatalytic air purifier of claim 1, wherein the plurality of support structures are comprised of a non-flammable substrate.
5. (Original) The photocatalytic air purifier of claim 4, wherein the plurality of support structures are comprised of a ceramic substrate.
6. (Original) The photocatalytic air purifier of claim 4, wherein the plurality of support structures are comprised of an aluminum substrate.
7. (Original) The photocatalytic air purifier of claim 1, wherein the catalytic layer is adapted to react with airborne volatile organic compounds and airborne bioaerosols flowing through the photocatalytic purifier when activated by the at least one UV lamp.

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8. (Original) The photocatalytic air purifier of claim 7, wherein the at least one UV lamp oxidizes volatile organic compounds in contact with the catalytic layer.

9. (Original) The photocatalytic air purifier of claim 7, wherein the at least one UV lamp destroys bioaerosols in contact with the catalytic layer.

10. (Original) The photocatalytic air purifier of claim 1, wherein the plurality of support structures are comprised of a honey-combed material.

11. (Original) The photocatalytic air purifier of claim 1, wherein the plurality of support structures include a fin structure.

AC 12. (Currently Amended) The photocatalytic air purifier of claim 1, wherein retractable alignment mechanism includes a hinged door structure ~~that is~~ configured to be retracted to provide access to the modular photocatalytic air purifier.

13. (Original) The photocatalytic air purifier of claim 12, wherein retractable alignment mechanism includes a support arm to hold the hinged door structure in place during installation and removal of the photocatalytic air purifier.

14. (Currently Amended) The photocatalytic air purifier of claim 1, wherein retractable alignment mechanism includes a sliding mechanism that is configured to ~~slides~~ slide the modular enclosure between the in-use position and the retracted position.

15. (Original) The photocatalytic air purifier of claim 1, wherein the photocatalytic air purifier is disposed in a fan coil unit.

16. (Original) The photocatalytic air purifier of claim 1, wherein the photocatalytic air purifier is disposed in a duct.

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17. (Currently Amended) A fan coil unit including an air return, a coil unit, a fan, and an air supply, the fan coil unit comprising:

at least one photocatalytic purifier including,

a modular enclosure having a retractable alignment mechanism, the retractable alignment mechanism being configured to move between an in-use position aligned within the fan coil unit and a retracted position,

a plurality of support structures disposed within the modular enclosure, each of the plurality of support structures having a catalytic layer disposed thereon, and

at least one UV lamp interposed between the plurality of support structures; and

a control unit coupled to the at least one photocatalytic purifier ~~whereby the control unit energizes~~ and configured to energize the at least one UV lamp in accordance with a fan coil operating mode.

18. (Original) The fan coil unit of claim 17, further comprising a media filtration filter disposed between the at least one photocatalytic purifier and the air return path.

19. (Original) The fan coil unit of claim 17, wherein the at least one photocatalytic purifiers includes a plurality of photocatalytic purifiers.

20. (Original) The fan coil unit of claim 17, wherein the catalytic layer is comprised of titanium dioxide.

21. (Original) The fan coil unit of claim 17, wherein the plurality of support structures are comprised of a paper substrate.

22. (Original) The fan coil unit of claim 17, wherein the plurality of support structures are comprised of a non-flammable substrate.

23. (Original) The fan coil unit of claim 22, wherein the plurality of support structures are comprised of a ceramic substrate.

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24. (Original) The fan coil unit of claim 22, wherein the plurality of support structures are comprised of an aluminum substrate.

25. (Original) The fan coil unit of claim 17, wherein the catalytic layer is adapted to react with airborne volatile organic compounds and airborne bioaerosols flowing through the fan coil unit.

26 (Original) The fan coil unit of claim 25, wherein the at least one UV lamp oxidizes volatile organic compounds in contact with the catalytic layer.

27. (Original) The fan coil unit of claim 25, wherein the at least one UV lamp destroys bioaerosols in contact with the catalytic layer.

28. (Original) The fan coil unit of claim 17, wherein the at least one UV lamp is selectively energized in accordance with one of a plurality of air quality modes included in the control unit.

29. (Currently Amended) The fan coil unit of claim 28, wherein the plurality of air quality modes comprises:

an occupied mode <sup>wherein</sup> ~~whereby~~ the control unit ~~energizes~~ is configured to energize the at least one UV lamp and selectively energizes the fan; and

an unoccupied mode ~~whereby~~ wherein the control unit ~~de-energizes~~ is configured to de-energize the at least one UV lamp while regulating the coil to thereby maintain temperature within a predetermined temperature range.

30. (Original) The fan coil unit of claim 29, wherein the occupied mode further comprises:

a demand sub-mode wherein the fan and a valve are energized; and  
a satisfied sub-mode wherein at least the valve is de-energized.

31. (Original) The fan coil of claim 28, wherein one of the plurality of air quality modes is selected by a switch.

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32. (Original) The fan coil of claim 28, wherein one of the plurality of air quality modes is selected by a sensor.

33. (Original) The fan coil of claim 32, wherein the on-demand mode is selected in response to an output of an <sup>indoor air quality (IAQ)</sup> IAQ sensor.

34. (Original) The fan coil of claim of claim 17, wherein the plurality of support structures are comprised of a honey-combed material.

35. (Original) The fan coil of claim of claim 17, wherein the plurality of support structures include a fin structure.

36. (Original) The fan coil of claim of claim 17, wherein retractable alignment mechanism includes a hinged door structure <sup>configured to be</sup> ~~that is~~ retracted to provide access to the modular photocatalytic air purifier.

37. (Original) The fan coil of claim of claim 36, wherein retractable alignment mechanism includes a support arm to hold the hinged door structure in place during installation and removal of the photocatalytic air purifier.

38. (Currently Amended) The fan coil of claim of claim 17, wherein retractable alignment mechanism includes a sliding mechanism <sup>configured to slide</sup> ~~that slides~~ the modular enclosure between the in-use position and the retracted position.

39. (Cancelled)

40. (Cancelled)

41. (Cancelled)

42. (Cancelled)

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Cont'd

43. (Cancelled)

44. (Cancelled)

45. (Cancelled)

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